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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,893	11/28/2001	Harunobu Kusumoto	Q67476	8024

21254 7590. 03/25/2005

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EXAMINER	
PASSANITI, SEBASTIANO	
ART UNIT	**PAPER NUMBER**
3711	

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/994,893	KUSUMOTO, HARUNOBU	
	Examiner	Art Unit	
	Sebastiano Passaniti	3711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *see detailed Office action*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12 and 16-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 16-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office action is responsive to communication received 02/28/2005 – Request for Continued Examination (RCE) and amendment.

Claims 1-12 and 16-28 remain pending.

Following is an action on the MERITS:

The rejection under §103 below substantially repeats a portion of the rejection presented in a previous Office action. To facilitate understanding of the rejection, those portions newly added to the rejection have been italicized and made bold in appearance.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-12 and 16-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noble in view of Beach, Thorne, Sasamoto, Kosmatka and Evans. Noble shows an arrangement in which the rear of the striking face is provided with a thin-walled portion as well as a thick-walled portion. The striking face is in the form of a plate and is made of metal. Noble differs from the claimed invention in that Noble does not disclose a rolling procedure for forming the thick-walled and thin-walled portions, nor does Noble detail that the face is formed by forging or machining, with either process combined with a rolling process. Noble does not discuss that the rolling direction is

oriented with the short dimension of the club or that the crystal grains maintain a specific orientation within the thin-walled portion. ***Last, Noble does not disclose a flat surface comprising a substantially uniform elevation having an outermost periphery located at a central area of the face portion.*** Beach shows it to be old in the art to fashion a club head face from either forging or rolling or a combination thereof. See col. 4, lines 16-18 in Beach. Thorne acknowledges that forging or machining may be used to fabricate the diverse parts of the club head. See col. 2, lines 60-64 in Thorne. These processes are well-known to the skilled artisan in the golf art and the selection of the appropriate manufacturing technique in view of material and cost considerations would have been obvious at the time of the invention. Sasamoto takes advantage of a rolling procedure to fabricate the striking face plate and orients the longitudinal direction of the crystal grains within the material of the striking face plate such that the grains run parallel to the vertical, or short, dimension of the head. With this arrangement, Sasamoto minimizes the amount of cracking to which the face plate would otherwise be susceptible to with the crystal grains oriented in a non-parallel fashion with respect to the vertical dimension of the striking plate. Moreover, Sasamoto recognizes that the formation of the striking plate via a rolling process in which the crystal grains are oriented as detailed above goes far to produce a desirable weight reduction of the head, enables thinning of the club head shell while maintaining the strength and integrity of the shell and helps to improve the directional stability of a struck ball. See col. 9, lines 1-65 in Sasamoto. In view of the patent to Sasamoto, it would have been obvious to modify the device in the cited art reference to Noble by

providing for a specific grain orientation of the material that makes-up the striking face, the motivation being to reduce the likelihood that the striking face material will crack under normal use. Specific to claim 2, Figures 9 and 10 in Noble show a smooth transition between the thin-walled and thick-walled portions. Specific to claim 3, the transition from thick-walled to thin-walled portions is clearly gentler in a heel-to-toe direction, rather than a top-to-sole direction, as evidenced by claim 10, since the length dimension is greater than the height or vertical dimension of the striking plate. Specific to claim 4, the thickness of the thick-walled portion is at least 10% greater than the thickness of the thin-walled portion. Specific to claim 5, the center of the striking plate is thick-walled while the peripheral region is thin-walled. Specific to claims 6 and 10-12, note the comments with respect to the Sasamoto reference, supra. As to claim 7, note that Thorne obviates the use of a machining process, as discussed above. As to claim 8, see Figures 9 and 10 in Noble, which clearly show that the peripheral edge is thinned. As to claim 9, Thorne obviates the use of a forging operation to fabricate the head. Specific to claims 16-19, the claimed thickness of the fringe surface is not deemed critical, as the skilled artisan, being familiar with the various manufacturing techniques available at the time of the invention including forging, machining and rolling, would have found it obvious to dimension the fringe portion to a sufficient thickness so that a welding operation could have been performed without jeopardizing the structural integrity of the striking plate connection at its juncture with the front portion of the club head body. Specific to claim 20, note the comments above regarding the teachings of Beach. As to claims 21 and 22, the claimed dimensions are not deemed critical, as the

thickness would have depended upon the material used for the face portion. As to claim 23, note the comments discussed above with respect to Sasamoto. As to claims 24 and 27 (apparent duplicates of one another), note that Noble makes use of titanium material. As to claims 25 and 26, note the comments above for claims 16-19. As to claim 28, note the comments for claim 1, supra. While it may be argued that the base reference to Noble shows a flat surface at the thickened wall portion, the teaching reference to Kosmatka is cited to show without question that at least a portion of the thickened central portion of the striking member may indeed be substantially flat in profile (Figure 2A). ***Moreover and with respect to the newly added limitation in claims 1, 9, 16 and 28, it is clear that even absent a specific teaching in the Kosmatka reference that the thickened wall portion is concentrated at the central area of the face portion, the teaching reference to Evans clearly obviates the desire to provide a central flat surface of substantially uniform elevation (Figure 9) in order to concentrate a majority of weight at the center of the strike plate directly behind where a golf ball is most likely to impact the strike plate. The reasons for this arrangement are set forth in column 6, lines 8-34 in Evans. In view of the patent to Evans, it would have been obvious to further modify the Noble device by providing a flat surface comprising a substantially uniform elevation at the central area of the face, the motivation being to provide reduced energy loss and subsequently producing greater distance of a struck ball.***

Claims 1-11, 16-22 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noble in view of Kosmatka and Evans. The patent to Noble shows

every feature claimed with the exception of clearly showing a flat surface at the thick walled portion of the face plate. Kosmatka clearly shows a generally flattened portion (Figure 2) for the region of greatest thickness at the center and to the rear of the striking plate. Kosmatka discusses that the thickness of the striking plate may be altered depending on the materials used for the face and the preferred size and shape of the head (col. 5, lines 30-50). In view of the patent to Kosmatka, it would have been obvious to modify the device in the cited art reference to Noble by providing a thick-walled region on the face portion, said thick-walled region further having a flat surface, the motivation being to selectively stiffen the striking plate. With respect to the remaining features in the claims, it is noted that a complete exposition of how Noble meets the remaining claimed structural limitations has been presented in the rejection, supra. A further explanation will not be presented here, for brevity. However, it is noted that the "method" limitations scattered throughout the claims may be interpreted as not having any limiting effect in these structure claims. By way of example only, the fact that the face portion is required to be "rolled" (claim 1), or that a specific "rolling direction" (claim 6) be realized, or that a thin-walled surface be "machined" (claim 7), or that the thickness of the thick-walled portion is the same as the plate "from which the face portion is forged", or that the second portion has a thickness formed by "machining" (claim 28) has no limiting effect in these structure claims. The skilled artisan would have been familiar with the customary operations available for manufacturing and finishing the diverse parts of a club head and would have found it obvious to use any one or combination of a rolling, machining or forging operation. By this interpretation,

the only structure within these claims appears to include a face portion having at least two portions of diverse thickness. ***Moreover and with respect to the newly added limitation in claims 1, 9, 16 and 28, it is clear that even absent a specific teaching in the Kosmatka reference that the thickened wall portion is concentrated at the central area of the face portion, the teaching reference to Evans clearly obviates the desire to provide a central flat surface of substantially uniform elevation (Figure 9) in order to concentrate a majority of weight at the center of the strike plate directly behind where a golf ball is most likely to impact the strike plate. The reasons for this arrangement are set forth in column 6, lines 8-34 in Evans. In view of the patent to Evans, it would have been obvious to further modify the Noble device by providing a flat surface comprising a substantially uniform elevation at the central area of the face, the motivation being to provide reduced energy loss and subsequently producing greater distance of a struck ball.***

Claims 12 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noble in view of Kosmatka, Evans and Sasamoto. ***Noble in view of Kosmatka and Evans has been discussed above***. Sasamoto takes advantage of a rolling procedure to fabricate the striking face plate and orients the longitudinal direction of the crystal grains within the material of the striking face plate such that the grains run parallel to the vertical, or short, dimension of the head. With this structural arrangement, Sasamoto minimizes the amount of cracking to which the face plate would otherwise be susceptible to with the crystal grains oriented in a non-parallel fashion with respect to the vertical dimension of the striking plate. Moreover, Sasamoto recognizes

that the formation of the striking plate via a rolling process in which the crystal grains are oriented as detailed above goes far to produce a desirable weight reduction of the head, enables thinning of the club head shell while maintaining the strength and integrity of the shell and helps to improve the directional stability of a struck ball. See col. 9, lines 1-65 in Sasamoto. In view of the patent to Sasamoto, it would have been obvious to modify the device in the cited art reference to Noble by providing for a specific grain orientation of the material that makes-up the striking face, the motivation being to reduce the likelihood that the striking face material will crack under normal use.

RESPONSE TO ARGUMENTS

In the arguments received 02/28/2005, the applicant contends that the prior art cited fails to show a flat surface comprising a substantially uniform elevation and having an outermost periphery located at a central area of the face portion. The applicant contends that the fact that five references have been combined to reject the claims is evidence that a prima facie case of obviousness has not been established. Further, the applicant argues that there is no teaching in the art that would have motivated one of ordinary skill in the art to use rolling or forging instead of casting or to use machining instead of casting or forging. Moreover, the applicant disputes the obviousness of modifying the primary Noble device, since Noble allegedly teaches away from having a "flat surface" at the geometric center, while the secondary teachings such as Kosmatka show a substantially constant thickness at the center of the striking plate at the rear thereof from the top to the bottom of the striking plate. Here, the applicant contends that impermissible hindsight has been used.

In response to these arguments, it is noted that there is no statute that limits the number of references that may be combined in a §103 rejection. Instead, the Patent Laws have established that the number of references that may be properly combined depends on the fact scenario in each case. **In re Lainson**, 144 USPQ 19 (CCPA 1964). Moreover, the number of references does not have a bearing on the propriety of the specific rejection. The number of references theoretically could be infinite. **Ex parte Fine**, 1927 C.D. 84 (1926). Regarding applicant's comments as to the method used to form the claimed hollow club head, it would appear that the applicant is challenging the validity of what is stated in the rejections, that is, that other processes besides a casting process to make a hollow club head are well-known to the skilled artisan in the golf art and the selection of the appropriate manufacturing technique in view of material and cost considerations would have been obvious at the time of the invention. In response to this challenge, applicant is directed to review the further references to Motomiya (U.S. Patent No. 4,438,931) and Zeider (U.S. Patent No. 5,232,224), cited here to argue the obviousness of using other processes such as forging or stamping as an alternative to casting to fabricate a hollow club head. See col. 1, lines 15-40 in Motomiya. See col. 1, lines 17-31 and col. 2, lines 42-54 in Zeider. Regarding applicant's arguments based on impermissible hindsight, it is clear that the test for combining references is based on what the combination of the disclosures taken as a whole would have suggested to one of ordinary skill in the art. See **In re McLaughlin**, 170 USPQ 209 (CCPA 1971). See **In re Conrad**, 169 USPQ 170 (CCPA 1971). Here, it is clear that in each of the §103

rejections, the Office has presented a logical motivation for combining the teachings of the individual references.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sebastiano Passaniti whose telephone number is 571-272-4413. The examiner can normally be reached on Mon-Fri (6:30-3:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Vidovich can be reached on 571-272-4415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sebastiano Passaniti
Primary Examiner
Art Unit 3711

S.Passaniti/sp
March 21, 2005